

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/002710

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 2-9 as originally filed/furnished
- pages\* 1, 1a received by this Authority on 14.05.2005 with letter of 12.05.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-12 received by this Authority on 14.05.2005 with letter of 12.05.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/7-7/7 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-12</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p><b>1 Prior art documents</b></p> <p>This report makes reference to the following documents:</p> <p>D1: EP-A-0 982 194 (VOLKSWAGEN AKTIENGESELLSCHAFT) 1 March 2000 (2000-03-01)</p> <p>D2: US-A-4 176 250 (BERGLIND, BRADFORD L) 27 November 1979 (1979-11-27)</p> <p>D3: US-A-5 886 419 (SAITO ET AL) 23 March 1999 (1999-03-23)</p> <p>D4: DE 40 06 124 A1 (MERCEDES-BENZ AKTIENGESELLSCHAFT, 7000 STUTTGART, DE) 5 September 1991 (1991-09-05)</p> <p><b>2 Claims 1 to 12</b></p> <p>2.1 Claim 1, Novelty</p> <p>Document D1 is considered the prior art closest to the subject matter of claim 1 and discloses (the references between parentheses refer to that document; see paragraphs [0009] to [0028] and the</p>		

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	<p>drawing) a method for the pulse width-modulated control of a plurality of load elements, the load elements each being controlled in a time staggered manner with respect to one another.</p> <p>The subject matter of claim 1 thus differs from the known method in that the load elements are controlled in a phase staggered manner by a common control unit with a common system clock, a start value and an end value being defined for each load element, the start values for the load elements being mutually different, the end values for the load elements being determined according to the pulse-pause ratio and each load element being subjected to an electric flow for the period between the respective start and end values.</p> <p>The subject matter of claim 1 is thus novel (PCT Article 33(2)).</p> <p>2.2 Claim 1, Inventive step</p> <p>The present invention can be considered to address the problem of better controlling load elements.</p> <p>The solution to this problem as proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:</p> <p>Although the features from the preamble of claim 1 are known at least individually from the prior</p>

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	<p>art, the solution as per the features of claim 1 in combination appears to be neither disclosed nor suggested by the prior art.</p> <p>Said solution clearly results in a reduction in interference in the vehicle electrical system owing to the control of the load elements.</p> <p>2.3 Dependent claims 2 to 6</p> <p>Claims 2 to 6 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).</p> <p>2.4 Claim 7, directed to a control circuit</p> <p>2.4.1 Document D1 is considered the prior art closest to the subject matter of claim 7 and discloses at least implicitly a control circuit for implementing the method according to the preamble of claim 1.</p> <p>The subject matter of claim 7 thus differs from the known circuit by virtue of a common system clock generator and a memory area for each load element, in which are stored the pulse width and the phase position of each load element.</p> <p>The subject matter of claim 7 is therefore novel (PCT Article 33(2)).</p>

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2.4.2	<p>The present invention can be considered to address the problem of better controlling load elements.</p> <p>The solution to this problem as proposed in claim 7 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:</p> <p>Although the features of a control circuit for implementing the method according to the preamble of claim 1 are known at least individually from the prior art, the solution as per the features of claim 7 in combination appears to be neither disclosed nor suggested by the prior art.</p>
2.5	<p>Dependent claims 8 to 12</p> <p>Claims 8 to 12 are dependent on claim 7 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).</p>
3	<p>Industrial applicability</p> <p>The subject matter of claims 1 to 12 also appears to meet the requirements of PCT Article 33(4), since it appears that it can be produced and also used in the field of automotive engineering.</p>

**Box No. VII**      **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

**1**      **Claims**

Claim 7 fails to mention that claim 7 concerns a control circuit for implementing the method according to one of **claims 1 to 6**.